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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,837	10/22/2001	Su Seok Choi	054358-5009	8389

9629 7590 08/07/2003

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,837

Applicant(s)

CHOI ET AL.

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 May 2003 is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1, 3-7 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., (Yamazaki), USPAT 6,099,672 in view of Tanaka et al., (Tanaka), USPAT 6,137,559.**

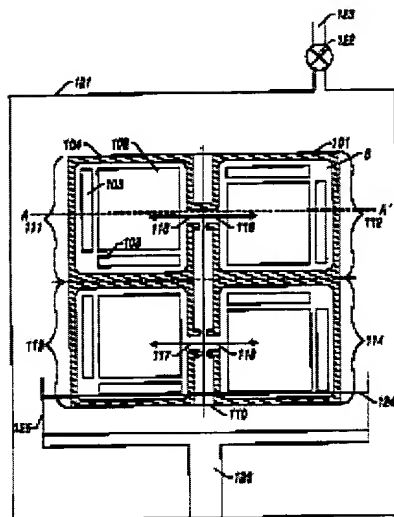
4. Yamazaki discloses and shows in Figs. 1 and 2, a liquid crystal display device comprising:

- a thin film transistor substrate (201), on which a plurality of data lines and gate lines are positioned perpendicular to each other;
- a plurality of pixel electrodes (102) formed near intersections of the data lines

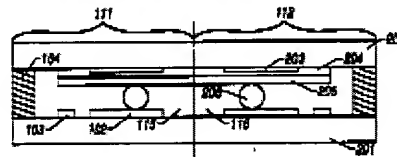
and the gate lines;

- a color filter substrate (202) positioned parallel to the thin film transistor

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**FIG. 1**

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substrate (201), including a color filter layer (203), a black matrix and a common electrode (205) formed thereon;

- a polymer wall arrangement formed on the thin film transistor substrate dividing the substrate into a plurality of liquid crystal panels (col. 4, lines 1-6); and
- at least one liquid crystal injection opening formed on each panel of the plurality of liquid crystal panels

Further, it is clear from Fig. 1 of Yamazaki that at least one polymer wall is formed parallel to a side of the substrate.

Yamazaki also shows that spacer (206) is formed in the substrate.

Yamazaki discloses that the liquid crystal materials are injected through the

injection opening by using vacuum injection method (col. 3, lines 28-31).

Yamazaki differs from the claimed invention because he does not explicitly disclose that the injection openings are formed along edge portions of the plurality of the liquid crystal panels and are arranged along vertical and horizontal line directions.

Tanaka discloses a liquid crystal display device including plurality of liquid crystal panels wherein liquid crystal injection openings are formed along edge portions of the plurality of the liquid crystal display panels and are arranged along vertical and horizontal directions (Fig. 1). Tanaka also discloses that such an arrangement is advantageous since it improves manufacturing processes by improving work efficiency and reduces cost and provides a device of high display quality (col. 1, lines 60-64).

Tanaka is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form liquid crystal injection openings along edge portions of the plurality of the liquid crystal display panels and arrange the openings along vertical and horizontal directions.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Yamazaki by forming the liquid crystal injection openings along edge portions of the plurality of the liquid crystal display panels and arranging the openings along vertical and horizontal directions so that work efficiency is improved and cost is reduced and thus manufacturing process is improved and a device of high display quality is obtained, as per the teachings of Tanaka.

Accordingly, claims 1, 3-7 and 11-19 would have been obvious.

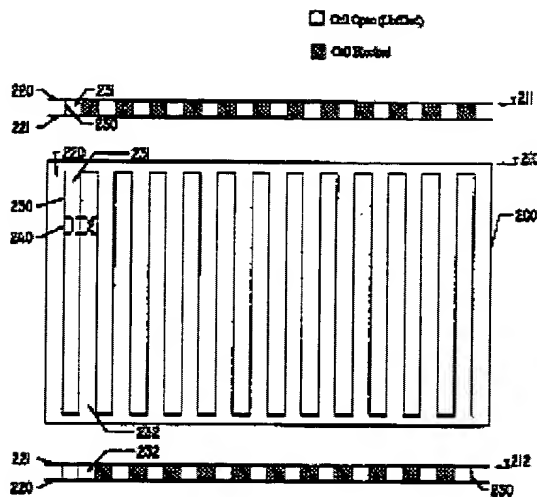
5. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Ma et al., (Ma), USPAT 6,285,434 in view of Tanaka.

6. The AAPA described in the present application discloses and shows in Fig. 1, a liquid crystal display device comprising:

- a thin film transistor substrate (20), on which a plurality of data lines (23) and gate lines (22) are positioned perpendicular to each other;
- a plurality of pixel electrodes (25) formed near intersections of the data lines and the gate lines;
- a color filter substrate (10) positioned parallel to the thin film transistor substrate (20), including a color filter layer (12), a black matrix 913) and a common electrode (14) formed thereon;

The AAPA described in the present application differs from the claimed invention because it does not explicitly disclose the claimed polymer wall arrangement that is dividing the substrate into a plurality of liquid crystal panel and that at least one liquid crystal injection opening is formed on each panel of the plurality of liquid crystal panels.

Ma discloses a liquid crystal display device including a polymer wall arrangement that is dividing the substrate into a plurality of liquid crystal panels and each panel has at least one liquid crystal injection opening (col. 2, lines 5-10; col. 4, lines 36-38). Ma also discloses that such an arrangement is advantageous since it enhances manufacturability (col. 2, lines 11-12).



Ma is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to form polymer wall arrangement on the substrate of the AAPA so that plurality of liquid crystal panels are formed and form at least one injection opening on each of the panels so that manufacturability is enhanced, as per the teachings of Ma.

Still lacking is the limitation such that the injection openings are formed along edge portions of the plurality of the liquid crystal panels and are arranged along vertical and horizontal line directions.

Tanaka discloses a liquid crystal display device including plurality of liquid crystal panels wherein liquid crystal injection openings are formed along edge portions of the plurality of the liquid crystal display panels and are arranged along vertical and horizontal directions (Fig. 1). Tanaka also discloses that such an arrangement is advantageous since it improves manufacturing processes by improving work efficiency and reduces cost and provides a device of high display quality (col. 1, lines 60-64).

Tanaka is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form liquid crystal injection openings along edge portions of the plurality of the liquid crystal display panels and arrange the openings along vertical and horizontal directions.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of AAPA when modified by Ma by forming the liquid crystal injection openings along edge portions of the plurality of the liquid crystal display panels and arranging the openings along vertical and horizontal directions so that work efficiency is improved and cost is reduced and thus manufacturing process is improved and a device of high display quality is obtained, as per the teachings of Tanaka.

Further, since the method of manufacturing the device is merely a list of forming each component and each component must be formed to make the device, the method of manufacturing would be inherent to the device. Further, vacuum injection method is common and known in the art and thus would have been obvious to use to avail a proven method.

Accordingly, claims 1-19 would have been obvious.

Response to Arguments

7. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



T. Chowdhury
Primary Examiner
Technology Center 2800

TRC
August 5, 2003